

## **REMARKS**

Claims 1 and 3-29 are pending in the application, with claims 1, 22, 25, 26, and 27 being the independent claims. Based on the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding rejections and that they be withdrawn.

### **Rejection based on non-statutory subject matter**

1. In the Office Action on page 2 in sections 2 and 3, the Office Action rejected claims 1-20, 22-24 and 29 as being directed to non-statutory subject matter. Although this is the third Office Action for this application, this is the first time the claims have been rejected as being non-statutory. Applicant respectfully traverses the rejection.

The Office Action asserted that independent claim 1 and dependent claim 22 pertain to mere computer programs per se (i.e., non-statutory functional descriptive material) and cited M.P.E.P. § 2106(IV)(B)(1)(a). The Office Action further proposed an amendment to overcome the rejection. The Office Action did not discuss the rationale for rejecting claims 2-20, 23, 24, and 29.

The Office Action applied the incorrect section 101 analysis to the claims. Recently, the Office's Board of Appeals struck down the technological arts test used in the Office's section 101 analysis. "Our determination is that there is currently no judicially recognized separate 'technological arts' test to determine patent eligible subject matter under § 101. We decline to create one. Therefore, it is apparent that the examiner's rejection cannot be sustained."

Ex parte Lundgren, Appeal No. 2003-2088, U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences (Sept. 2005). In response, the Office released Interim Guidelines for

Examination of Patent Applications for Subject Matter Eligibility on October 26, 2005. These Interim Guidelines supersede those in the M.P.E.P. Thus, in analyzing the claims, the Office Action should have used the Interim Guidelines, and not the M.P.E.P.

The Interim Guidelines set forth the procedures that Office personnel should follow when examining applications, including a determination as to whether the claimed invention complies with the subject matter eligibility requirement of Section 101.

To properly determine whether a claimed invention complies with the statutory invention requirements of 35 U.S.C. § 101, USPTO personnel must first identify whether the claim falls within at least one of the four enumerated categories of patentable subject matter recited in section 101 (process, machine, manufacture or composition of matter).

In many instances it is clear within which of the enumerated categories a claimed invention falls. Even if the characterization of the claimed invention is not clear, this is usually not an issue that will preclude making an accurate and correct assessment with respect to the section 101 analysis.

Interim Guidelines, pages 14-15.

For example, a claimed invention may be a combination of devices that appear to be directed to a machine and one or more steps of the functions performed by the machine. Such instances of mixed attributes, although potentially confusing as to which category of patentable subject matter it belongs in, does not affect the analysis to be performed by the examiner. Note that an apparatus claim with process steps is not classified as a “hybrid” claim; instead, it is simply an apparatus claim including functional limitations.

Interim Guidelines, page 15.

The burden is on the USPTO to set forth a prima facie case of unpatentability. Therefore if the examiner determines that it is more likely than not that the claimed subject matter falls outside all of the statutory categories, the examiner must provide an explanation. For example, a claim reciting only a musical composition, literary work, compilation of data, or legal document (e.g., an insurance policy) per se does not appear to be a process, machine, manufacture, or composition of matter. If the examiner can establish a prima facie case that a claim does not fall into a statutory category, that does not preclude complete examination of the application for satisfaction of all other conditions of patentability. The examiner must further continue with the statutory subject matter analysis as set forth below. .

Interim Guidelines, page 16.

Determining whether the claim falls within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. § 101 (process, machine, manufacture or composition of matter) does not end the analysis because claims directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible and therefore are excluded from patent protection.

Interim Guidelines, pages 16-17.

Claim 1 recites: “A computer-readable medium comprising software for a video surveillance system, comprising code segments for operating the video surveillance system based on video primitives, wherein the code segments for operating the video surveillance system comprise: code segments for extracting video primitives; and code segments for extracting event occurrences from the video primitives.” Applying the Interim Guidelines, claim 1 recites a manufacture and is within one of the four enumerated categories of patentable subject matter.

Moreover, claim 1 does not recite an abstract idea, a natural phenomenon, or a law of nature.

Thus, claim 1 recites statutory subject matter.

As to claims 2-20, 22-24, and 29, these claims recite statutory subject matter as being dependent from a claim that recites statutory subject matter.

### **Anticipation Rejection based on Grech-Cini**

2. On pages 3-6 in sections 4 and 5, the Office Action rejected claims 1, 3-11, and 13-29 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0024446 to Grech-Cini (hereinafter Grech-Cini). Applicant respectfully traverses the rejection.

Claim 1 recites: a computer-readable medium comprising software for a video surveillance system, comprising code segments for operating the video surveillance system based on video primitives, wherein the code segments for operating the video surveillance system comprise: code segments for extracting video primitives; and code segments for extracting event occurrences based on the video primitives.

Grech-Cini teaches a smoke detection system using image-based (not video-based) algorithms to detect smoke. Grech-Cini, [0001]. The algorithm compares a current image of the scene with a reference image and determines which pixels have changed in the image. Grech-Cini, [0024]-[0025], [0069], [0087]. Based on the result of the comparison, the algorithm computes a large number of “image processing primitives.” Grech-Cini, [0090]-[0091]. Examples from the twenty-one image processing primitives set forth in Grech-Cini include: mean value of unmasked pixels in a zone; number of unmasked pixels in the current image that

deviate from the mean with the same sign as in the reference image; number of unmasked pixels in the current image that deviate from the mean with the opposite sign as in the reference image; total number of pixels in the zone; number of unmasked pixels in the zone; an edge calculation for unmasked pixels in the current image; and an edge calculation for unmasked pixels in the reference image. Grech-Cini, [0092]-[0135]. These image processing primitives are **low-level** image processing routines that operate over the entire image or rectangular areas of the image (i.e., “zones”) of the image and produce a numeric result. Grech-Cini, [0074]-[0075], [0090]-[0091].

The algorithm of Grech-Cini next applies *ad hoc* heuristics to the obtained low-level image processing primitives to obtain a score for each heuristic. Grech-Cini, [0136]-[0151]. The scores for each of the heuristics are summed and compared to an *ad hoc* threshold to determine if smoke is in the current image. Grech-Cini, [0138], [0152]-[0153]. For example, if most of the pixels have intensity values that are closer to the mean value in the current image than in the reference image, three points are scored. Grech-Cini, [0144]-[0145]. As another example, if there are edges in the current image that are not in the reference image, or if edges are in the reference image that are not in the current image, three or six points are scored. Grech-Cini, [0146]-[0147]. Each heuristic generates a number of points in this *ad hoc* fashion. If the total number of points exceeds the *ad hoc* threshold, the current image is determined to contain smoke. Grech-Cini, [0138], [0152]-[0153].

Finally, the algorithm of Grech-Cini uses a Bayesian (i.e., probabilistic) analysis based on a large training set to distinguish false alarms. Grech-Cini, [0154]-[0166]. The algorithm is provided with a large number of training images with and without smoke. The low-level image

processing primitives are calculated for each training image, a vector of these values is formed for each training image, and a cluster of vectors that indicate smoke and a cluster of vectors that indicate no smoke are calculated. Grech-Cini, [0156]-[0159]. Depending on which cluster the current image matches, the algorithm determines whether smoke or no smoke is depicted in the current image. Grech-Cini, [0158].

Grech-Cini fails to teach claim 1 for several reasons. First, Grech-Cini fails to teach extracting video primitives, based on the definitions of “object” and “video primitive.” In rejecting claim 1, the Office Action aligned the recited extracting video primitives with obtaining the low-level image processing primitives of Grech-Cini in paragraphs [0076], [0090]-[0091], and [0120]-[0135] and processing the *ad hoc* heuristics applied to the low-level image processing primitives of Grech-Cini in paragraphs [0136]-[0151]. As the Office Action may not have realized, the specification provides a definition for both “object” and “video primitive,” where “object” is used in the definition of “video primitive.” As is well established, “a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

As defined in the specification, an “object” refers to **an item of interest** in a video. Specification, [45]. Examples of an object include a person, a vehicle, an animal, and a physical subject. Specification, [45]. Neither the low-level image processing primitives nor the *ad hoc* heuristics, as cited by the Office Action, are the same as, or even similar to, an object, as defined in the specification. None of these are an item of interest in a video. Further, none of these are similar to the examples of an object provided in the specification, namely a person, a vehicle, an

animal, and a physical subject. The closest feature of the system of Grech-Cini that may be considered an object is the smoke of Grech-Cini. However, smoke is neither the same nor similar to the examples of an object provided in the specification, namely a person, a vehicle, an animal, and a physical subject.

In addition, as defined in the specification, a “video primitive” refers to **an observable attribute of an object** viewed in a video feed. Specification, [80]. Examples of video primitives provided in the specification include: an identification of an object belonging to a particular category or class; a dimensional attribute of an object; a chromatic attribute of an object; a pattern attribute of an object; a measure of the rigidity of an object; a motion of an object that can be automatically detected and tracked for some period of time; and a property of salient motion of an object. Specification, [80]-[91]. These examples of video primitives are basically things that a human can observe about an object.

Neither the low-level image processing primitives nor the *ad hoc* heuristics, as cited by the Office Action, are the same as or similar to a video primitive. None of these are an observable attribute of an object viewed in a video feed. As noted above, the closest feature of Grech-Cini that may be considered an object is smoke. However, neither the low-level image processing primitives nor the *ad hoc* heuristics are video primitives of smoke. The low-level image processing primitives are **not** observable attributes of smoke but are, instead, pure mathematical pixel measures. Grech-Cini, [0074]-[0075], [0090]-[0091]. Further, they are mathematical pixel measures for either **the current image** or **a zone** of the current image, and **not** the **smoke** in the current image. Grech-Cini, [0074]-[0075], [0090]-[0091]. Moreover, the low-level image processing primitives are neither the same as nor similar to things that a human

can observe about an object, such as the examples of video primitives in the specification.

Hence, Grech-Cini fails to teach extracting video primitives, based on the definitions of “object” and “video primitive.”

Second, Grech-Cini fails to teach extracting video primitives based on the low-level processing employed by the image processing primitives of Grech-Cini. The use of word “primitives” in the context of “low-level image processing primitives” as used by Grech-Cini should not be confused with the use of the word “primitives” in the context of “video primitives” as used in the claim. Although not comparable to the recited video primitives, the low-level image primitives of Grech-Cini may be, perhaps, arguably comparable to the low-level processing used in the invention for object detection via motion in block 51, object detection via change in block 52, and/or generating blobs in block 53 of Figure 5. See, e.g., Specification, [107]-[111]. As set forth in the exemplary embodiments of the application, the low-level processing used in the invention in blocks 51, 52, and/or 53 are one of many processing components needed to extract video primitives. See, e.g., Specification, Figure 4, block 42; Figure 5, blocks 51-57; [106]-[111]. Although low-level processing may be used to detect objects, the detected objects are **not** video primitives. Hence, Grech-Cini fails to teach extracting video primitives based on the low-level processing employed by the image processing primitives of Grech-Cini.

Third, Grech-Cini fails to teach extracting event occurrences. In rejecting claim 1, the Office Action aligns the recited extracting event occurrences with the scoring and Bayesian analysis to determine if smoke actually occurred in Grech-Cini. As the Office Action may not have realized, the specification provides definitions for “object” and “event.” As is well



established, “a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). As defined in the specification, an “object” refers to **an item of interest** in a video, where examples of an object include a person, a vehicle, an animal, and a physical subject. Specification, [45]. Further, as defined in the specification, an “event” refers to **one or more objects engaged in an activity**, where the event may be referenced to a location and/or time. Specification, [48]. Examples of events from the specification include: a person loitering in an ATM area for longer than 15 minutes (Specification, [66]); a person entering restricted area A (Specification, [68]); the number of people entering a store (Specification, [69]); and a person approaching a cockpit in an aircraft (Specification, [70]). Based on these definitions, smoke is **not** an object, and a decision of whether smoke actually exists is **not** an event occurrence. Thus, Grech-Cini fails to teach extracting event occurrences.

Fourth, Grech-Cini fails to teach a video surveillance system. In rejecting claim 1, the Office Action aligns the recited video surveillance system with the smoke detection system of Grech-Cini. As support for this alignment, the Office Action relies on paragraph [0062] of Grech-Cini. Paragraph [0062] of Grech-Cini, however, fails to even mention “video surveillance.” Instead, paragraph [0062] of Grech-Cini only addresses smoke detection. Smoke detection is **not** the same as video surveillance. In addition, the remainder of Grech-Cini fails to even mention video surveillance. Thus, Grech-Cini fails to teach a video surveillance system.

Therefore, based on the above arguments, Grech-Cini fails to teach claim 1.

Claims 4-11, 13-21, and 29 depend variously from claim 1, and are allowable as being dependent from an allowable claim.

Claim 22 recites similar features as claim 1 and is allowable for at least similar reasons as discussed above with respect to claim 1.

Claim 23 depends from claim 22, and is allowable as being dependent from an allowable claim.

Claim 25 recites similar features as claim 1 and is allowable for at least similar reasons as discussed above with respect to claim 1.

Claim 26 recites similar features as claim 1 and is allowable for at least similar reasons as discussed above with respect to claim 1.

Claim 27 recites similar features as claim 1 and is allowable for at least similar reasons as discussed above with respect to claim 1.

Claim 28 depends from claim 27, and is allowable as being dependent from an allowable claim.

**Anticipation Rejection based on Grech-Cini**

3. On page 6 in sections 6 and 7, the Office Action rejected claim 12 under 35 U.S.C. § 103(a) as being rendered obvious by Grech-Cini. Applicant respectfully traverses the rejection.

Claim 12 depends from claim 1 and is allowable as being dependent from an allowable claim.

### CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that all presently outstanding rejections be reconsidered and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

Date: January 5, 2006

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